

### **REMARKS**

This paper is filed in response to the Office Action mailed January 12, 2009.

Claims 82-90, 92, and 102-106 are pending in this application. Claim 106 is rejected under 35 U.S.C. § 112, ¶ 1 for allegedly failing to comply with the written description requirement. Claims 90, 92, and 102-106 are rejected under 35 U.S.C. § 112, ¶ 1 as allegedly being indefinite. Claims 82-88, 90, 92, and 102-105 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over an article by Adelstein at al (“Adelstein”) in view of the knowledge of one of ordinary skill in the art. Claim 89 is rejected under 35 U.S.C § 103(a) as allegedly being unpatentable over Adelstein in view of an article by R.L. Hollis and S.E. Salcudean (“Hollis”).

Applicant has amended claims 90 and 106. No new matter is added by these amendments, and support may be found in the specification, figures, and claims as originally filed.

Applicant respectfully traverses each of the Examiner’s rejections of the claims. Reconsideration and allowance of all claims is respectfully requested in light of remarks below.

#### **I. § 112, ¶ 1 – Claim 106**

Applicant respectfully traverses the Examiner’s rejection of claim 106 under 35 U.S.C. § 112, ¶ 1 as allegedly lacking sufficient written description.

To satisfy the written description requirement of 35 U.S.C. § 112, ¶ 1, the specification must “clearly convey the information that an applicant has invented the subject matter which is claimed.” *See* M.P.E.P. § 2163.

Applicant has amended claim 106 to recite that the second and third members, having a flexible characteristic, are coupled to two inflexible extension members. Such a configuration is described within the specification and figures. For example, paragraphs 124-126 describe a configuration in which two flexible members, 212a and 212b, are each coupled to an inflexible member, 210a and 210b, that are in turn coupled to ground. Figure 12 shows such a configuration. As such, amended claim 106 is sufficiently

described within the specification figures to clearly convey that the applicant has invented the claimed subject matter.

Applicant respectfully requests the Examiner withdraw the rejection of claim 106.

II. § 112, ¶ 1 – Claims 90, 92, and 102-106

Applicant respectfully traverses the Examiner's rejection of claim 106 under 35 U.S.C. § 112, ¶ 1 as allegedly being indefinite.

The Examiner rejected claim 90 for allegedly failing to clearly identify how the first member is coupled to the manipulum, whether to the shaft of the manipulum or to the manipulum itself, or whether the first member was the shaft. Applicant has amended claim 90 to clarify that the first member is coupled to the shaft of the manipulum to allow the manipulum to move along a longitudinal axis.

Applicant respectfully requests the Examiner withdraw the rejection of claim 90. Because claims 92 and 102-106 were rejected for being dependent upon rejected claim 90, applicant respectfully requests the Examiner withdraw the rejection of claims 92 and 102-106.

III. § 103(a) – Adelstein – Claims 82-88, 90, 92, and 102-105

Applicant respectfully traverses the rejection of claims 82-88, 90, 92 and 102-105 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Adelstein.

To sustain a rejection of a claim under 35 U.S.C. § 103(a), the scope and content of the prior art must disclose or suggest the claimed invention. *See* M.P.E.P. § 2141, 2143.

Claim 82 is patentable over Adelstein because Adelstein does not disclose “the linkage further configured to allow the manipulum to move in a translational degree of freedom through an aperture of a portion of the linkage along the longitudinal axis” as recited in claim 82.

The Examiner argues that the strain gauge miniature joystick and its special thrust bearing decoupling mechanism allow “some movement tangent to the two dimensional manipulum movement to allow forces to be applied to the strain gauges.” Further, the Examiner states that “[t]hus, even slight movement allowed for by the ‘special thrust

bearing decoupling mechanism' meets the added claim limitation quoted above. Finally, the Examiner argues that one of ordinary skill in the art would have recognized that there are two main ways to connect a handle to a shaft, one is with an aperture in the handle, and one with an aperture in the shaft. Applicant disputes each of these points individually and reserves the right to address them in future correspondence, if necessary; however, even if the Examiner's assertions were correct individually, they do not combine as recited in claim 82.

Notably, claim 82 recites that the manipulandum moves in a translational degree of freedom through an aperture along a longitudinal axis. The Examiner points to the strain gauge as providing a small amount of longitudinal movement tangent to the rotary motion of the Adelstein manipulandum. The following diagram illustrates one of the two rotary degrees of freedom, A, and an axis, B, tangent to such a rotary degree of freedom:

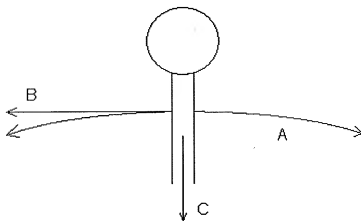


Figure A

But for Adelstein to disclose or suggest "the linkage further configured to allow the manipulandum to move in a translational degree of freedom through an aperture of a portion of the linkage along the longitudinal axis", Adelstein must disclose or suggest: (1) an aperture oriented along an axis tangent relative to the rotary degrees of freedom of the manipulandum, and (2) Adelstein must disclose that the movement along the longitudinal axis of the manipulandum is through this aperture.

The Examiner states that one of ordinary skill in the art would know to use an aperture in either the shaft or the manipulandum to couple the two together; however, even if the Examiner's assertion is correct, this knowledge does not include that the aperture is oriented tangent to a rotational degree of freedom of the manipulandum.

Further, there is no disclosure within Adelstein, and the Examiner has not provided any assertions that, even if such an aperture would have been known to one of skill in the art, the movement along the longitudinal axis of the strain gauge is through such an aperture. Claim 82 recites longitudinal movement through an aperture, not just that the manipulandum have an aperture and that the manipulandum is moveable along a longitudinal axis. Therefore, Adelstein in combination with the asserted knowledge of one of ordinary skill in the art does not disclose or suggest “the linkage further configured to allow the manipulandum to move in a translational degree of freedom through an aperture of a portion of the linkage along the longitudinal axis” as recited in claim 82. Thus, claim 82 is patentable over Adelstein in view of the knowledge of one of ordinary skill in the art as asserted by the Examiner.

The Examiner’s rejection of independent claim 90 is essentially the same as for the rejection of claim 82. However, claim 90 recites “a manipulandum having a shaft oriented along a longitudinal axis ... [and] a first member coupled to the shaft of the manipulandum and having an aperture configured to allow the manipulandum to move along the longitudinal axis...” Thus, referring again to Figure A above, the longitudinal axis, C, running along the shaft of the manipulandum is perpendicular to the tangent axis, B. The strain gauge is not disclosed as allowing movement along axis C; it is disclosed as allowing movement tangent to the rotary degrees of freedom – along axis B. Therefore, Adelstein in view of the skill of one of ordinary skill in the art does not disclose or suggest “a manipulandum having a shaft oriented along a longitudinal axis ... [and] a first member coupled to the shaft of the manipulandum and having an aperture configured to allow the manipulandum to move along the longitudinal axis...” Thus, claim 90 is patentable over Adelstein in view of the asserted skill of one of ordinary skill in the art.

Because claims 83-88, 92, and 102-105 depend from and further limit one of claims 82 or 90, each of claims 83-88, 92, and 102-105 are patentable over Adelstein in view of the asserted skill of one of ordinary skill in the art for at least the same reasons. Applicant respectfully requests the Examiner withdraw the rejection of claims 83-88, 92, and 102-105.

IV. § 103(a) – Adelstein in view of Hollis – Claim 89

Applicant respectfully traverses the rejection of claim 89 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Adelstein in view of Hollis.

To sustain a rejection of a claim under 35 U.S.C. § 103(a), the scope and content of the prior art must disclose or suggest the claimed invention. *See* M.P.E.P. § 2141, 2143.

Claim 89 depends from and further limits claim 82. As explained above, Adelstein in view of the skill in the art does not disclose or suggest all of the limitations of claim 82. Hollis does not cure the deficiencies of Adelstein in view of one skill in the art. The Examiner has introduced Hollis to teach a voice coil as an example of a Lorentz motor. However, Hollis does not disclose or suggest “the linkage further configured to allow the manipulandum to move in a translational degree of freedom through an aperture of a portion of the linkage along the longitudinal axis” as recited in claim 82, from which claim 89 depends. Thus, the combination of Adelstein, Hollis, and the asserted knowledge of one of ordinary skill in the art do not disclose or suggest “the linkage further configured to allow the manipulandum to move in a translational degree of freedom through an aperture of a portion of the linkage along the longitudinal axis.” Therefore claim 89 is patentable over the combined references. Applicant respectfully requests the Examiner withdraw the rejection of claim 89.

**CONCLUSION**

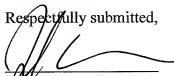
Applicant respectfully asserts that in view of the amendments and remarks above, all pending claims are allowable and Applicant respectfully requests the allowance of all claims.

Should the Examiner have any comments, questions, or suggestions of a nature necessary to expedite the prosecution of the application, or to place the case in condition for allowance, the Examiner is courteously requested to telephone the undersigned at the number listed below.

Date:

May 12, 2009

Respectfully submitted,

  
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